

## Abstract

A method for measuring distance and velocity at a plurality of objects using FMCW radar, in which:

- measurements are repeated cyclically using at least two  
5 different frequency ramps,
- in each measurement, the transmitted signal is mixed with the received signal, and the spectrum of the mixed signal is recorded,
- in a matching procedure, the peaks that are in the  
10 spectra recorded for various ramps and that belong to the same object are allocated to each other, and the distances and velocities of the objects are calculated from the frequencies of the peaks, and
- in a tracking procedure, the objects measured at various  
15 times are identified with one another on the basis of the consistency of their distance and velocity data, wherein
- each measuring cycle includes not more than three measurements with different frequency ramps,
- for each plausible combination [i, j] of two peaks, of  
20 which one was recorded during a first measurement and the other was recorded during a second measurement of the same cycle, the distance and the velocity of one possible object represented by these peaks are calculated,
- the anticipated result of at least one further  
25 measurement is calculated from the distance and the velocity of the possible object, and
- the possible object is discarded if at least one anticipated result does not agree with the measured result.

30 (Fig. 7)